

Name _____

Date _____

LESSON
6.1**Practice C**

For use with pages 414-419

*Answers***Rewrite the expression using rational exponent notation.**

1. $(\sqrt[5]{63})^3$ $63^{\frac{3}{5}}$ 2. $(\sqrt[3]{-25})^4$ $(-25)^{\frac{4}{3}}$ 3. $(\sqrt[6]{124})^7$ $124^{\frac{7}{6}}$

Rewrite the expression using radical notation.

4. $(-57)^{4/3}$ $(\sqrt[3]{-57})^4$ 5. $13^{3/2}$ $(\sqrt{13})^3$ or $\sqrt{(13)^3}$ 6. $204^{5/8}$ $(\sqrt[8]{204})^5$ or $\sqrt[8]{(204)^5}$

Evaluate the expression without using a calculator.

7. $(\sqrt[3]{27})^2$ 9 8. $(\sqrt[4]{256})^3$ 64 9. $(\sqrt[3]{-64})^2$ 16
10. $36^{3/2}$ 216 11. $(25)^{-3/2}$ $\frac{1}{125}$ 12. $(16)^{1/4}$ 2
13. $(-32)^{-3/5}$ $-\frac{1}{8}$ 14. $(81)^{-5/2}$ $\frac{1}{59049}$ 15. $(-125)^{-5/3}$ $-\frac{1}{3125}$

Evaluate the expression using a calculator. Round the result to two decimal places when appropriate.

16. $(\sqrt[3]{23})^5$ 186.01 17. $(\sqrt[4]{65})^3$ 22.89 18. $(\sqrt[5]{-124})^4$ 47.29
19. $(39)^{4/3}$ 132.26 20. $(-128)^{-2/5}$ 0.14 21. $(256)^{5/8}$ 32
22. $(-325)^{3/5}$ -32.15 23. $(215)^{-4/9}$ 0.09 24. $(-1012)^{8/5}$ -64311.53

Solve the equation. Round the result to two decimal places when appropriate.

25. $x^5 = 1321$ 4.21 26. $3x^5 + 3 = 213$ 2.34 27. $(x - 3)^6 = 502$ 0.18, 5.82
28. $-4x^3 = 132$ -3.21 29. $2x^4 = 36$ ± 2.06 30. $(3x + 2)^4 = 232$ -1.97, 0.63
31. $7 - x^5 = 3$ 1.32 32. $4x^5 + 96 = 24$ -1.78 33. $12 - (2x + 3)^3 = 84$ -3.58

34. Geometry Find the radius of a sphere with a volume of 994 cubic centimeters. 6.19 cm**35. Volume** A cylindrical container holds 20 ounces of liquid. One fluid ounce is approximately 1.8 cubic inches. The height of the container is 3.5 inches. Use the formula for the volume of a cylinder to find the radius of the container. 1.81 in**36. Critical Thinking** Use the following examples to determine when $\sqrt[n]{a^n} \neq a$.

- a. $\sqrt[3]{(-2)^3}$
b. $\sqrt{(-2)^2}$
c. $\sqrt[3]{2^3}$
d. $\sqrt{2^2}$

$\sqrt[n]{a^n} \neq a$
when $a < 0$
and n is
even